

SEQUENCE LISTING

(1) GENERAL INFORMATION

(i) APPLICANT: Yanagisawa, Masashi
Bergsma, Derk
Wilson, Shelagh
Brooks, David
Gellai, Miklos

(ii) TITLE OF THE INVENTION: NOVEL LIGANDS OF THE NEUROPEPTIDE
RECEPTOR HFGAN72

(iii) NUMBER OF SEQUENCES: 21

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: SmithKline Beecham Corporation
(B) STREET: 709 Swedeland Road
(C) CITY: King of Prussia
(D) STATE: PA
(E) COUNTRY:
(F) ZIP: 19406

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette
(B) COMPUTER: IBM Compatible
(C) OPERATING SYSTEM: DOS
(D) SOFTWARE: FastSEQ for Windows Version 2.0

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER:
(B) FILING DATE: 26-SEPT-1997
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/887,382
(B) FILING DATE: 2-JUL-1997

(viii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/820,519
(B) FILING DATE: 19-MAR-1997

(A) APPLICATION NUMBER: 60/033,604

452250 8453E680

(B) FILING DATE: 17-DEC-1997

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: King, William T.
(B) REGISTRATION NUMBER: 30,954
(C) REFERENCE/DOCKET NUMBER: ATG50037-2

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 610-270-5219
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(C) TELEX:

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1970 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

AAAACATAAT	GTGGGTCTCG	CGTCTGCCTC	TCTCCCGCCC	CTAATTAGCA	GCTGCCTCCC	60
TCCATATTGT	CCCAGGCCAG	CGCTTCTTTT	GTGCTCCCAG	ATTCCTGGGT	GCAAGGTGGC	120
CTCATTAGTG	CCCGGAGACC	GCCCCATCTC	CAGGGAGCAG	ATAGACAGAC	AAGGGGGTGA	180
TCAGGGGCAC	AGTGATCCAA	CCCTGGCCTC	TGAACGCCGC	AGCGGCCATT	CCTTGGGCCC	240
AGCCTGGAGA	CGGCCCCCTT	GCAGCAGGCT	AATCTTAGAC	TTGCCTTTGT	CTGGCCTGGG	300
TGTGGACGCA	ATGTGCCTGT	CAATTCCCCG	CCACCTCAGA	GCACTATAAA	CCCCAGACCC	360
CTGGGAGTGG	GTCACAATTG	ACAGCCTCAA	GGTTCCTGGC	TTTTTTGAAC	ACCACAGACA	420
TCTCCTTTCC	CGGCTACCCC	ACCCTGAGCG	CCAGACACCA	TGAACCTTCC	TTCCACAAAG	480
GTAAAGATCC	AGGGATGGAG	GGGTGACTCA	GCCATCCCAG	AGGAAGCAAA	AAGAGTGCTT	540
GCTCAGAGGG	CTGGAAGAAA	GGCCAAAGGT	GTCTCCACTC	TTGGTCTTTT	CCTGGGTGTG	600
CTCTGAGGCA	GGAGCACCTG	CCTTGGCTCA	CATTGGGTTG	GGTGCTGTTT	TGCTAAGAGC	660
CTGTGTTTGC	TGAGCTCATA	TGTGTCAGGT	GCTCCGTTTG	CACCTGTCAT	CTCTTGTCAT	720
CCTCCCAACA	GCCTTGACAG	GTAAGAAATTA	TTTCTAGTAT	ACCCAGTTTA	CAGGTAAGGG	780
AGCTGTGCCC	TCTGAAAGGG	CAGGAAACTG	GTTCAAAGCA	ACGGAGTTCA	GTCACCTCTG	840
CAAGGGGGCA	GGCAGATGAG	AGAGCATTCT	GGAGTCTTGC	TAGTTCCTGA	TTTCCATGTG	900
TTTCCCTGCT	GTGGAGAGGA	AGTTGGGGGG	ACTCAGTAGG	GCCCCGGGTTT	TTCCCAAGTT	960
TACAACTTCT	GCTGCAGACA	GACACTCCTG	TTTTCAGGTG	GAGTGGCAAG	TGCCCTAGTG	1020
GTGGCAACAG	TGGCCTAAGT	CTCCAGAGAA	AAGGGGGATT	CACTCTGCCC	AGGGGGTCTC	1080
AAAAGGCTTC	CTGTGGGAGA	TGCTCTGCTG	GGTCTTGAAG	GAGGAGCAGG	GAAAGTAGGC	1140
CGATACCAGC	AAGGGCGCAA	AGCAAGGAGA	ACTAAGTGAC	AGCCAGAAAG	GAGTGCAGGC	1200

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TTGGAGGGGG CGCGGAGCCA GAGGGGCAGG TCCTGTGCGT GGGAGCTGGT GGCGGGCGCC 1260
GTGGGAAGAC CCCCCAGCG CCCTGTCTCC GTCTCCCTAG GTCTCCTGGG CCGCCGTGAC 1320
GCTACTGCTG CTGCTGCTGC TGCTGCCGCC CGCGCTGTTG TCGTCCGGGG CGGCTGCACA 1380
GCCCCTGCCC GACTGCTGTC GTCAAAAGAC TTGCTCTTGC CGCCTCTACG AGCTGCTGCA 1440
CGGCGCGGGC AATCACGCGG CCGGCATCCT CACGCTGGGC AAGCGGAGGT CCGGGCCCCC 1500
GGGCCTCCAG GGTCGGCTGC AGCGCCTCCT GCAGGCCAGC GGCAACCACG CCGCGGGCAT 1560
CCTGACCATG GGCCGCCGCG CAGGCGCAGA GCCAGCGCCG CGCCCCTGCC TCGGGCGCCG 1620
CTGTTCCGCC CCGGCCGCCG CCTCCGTCGC GCCCGGAGGA CAGTCCGGGA TCTGAGTCGT 1680
TCTTCGGGCC CTGTCCTGGC CCAGGCCTCT GCCCTCTGCC CACCCAGCGT CAGCCCCCAG 1740
AAAAAAGGCA ATAAAGACGA GTCTCCATTC GTGTGACTGG TCTCTGTTCC TGTGCGGTGC 1800
CGTCCTGCCC ATCCGGGGTG GCAAAGCGTC TTGCGGAGGA CAGCTGGGCC TGGAAGCCCG 1860
GCTGTCGGGC ACCAGCCTTA GCTTTTTCGT GGTGAATCG GAAACACTCT TGTTGGGGA 1920
GTTCCCAGTG CAAGGCCCTG GGGCACAGAG AGAACTGCAC AGGTGCATGC 1970

```

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 131 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```

Met Asn Leu Pro Ser Thr Lys Val Ser Trp Ala Ala Val Thr Leu Leu
 1             5             10             15
Leu Leu Leu Leu Leu Leu Pro Pro Ala Leu Leu Ser Ser Gly Ala Ala
      20             25             30
Ala Gln Pro Leu Pro Asp Cys Cys Arg Gln Lys Thr Cys Ser Cys Arg
      35             40             45
Leu Tyr Glu Leu Leu His Gly Ala Gly Asn His Ala Ala Gly Ile Leu
      50             55             60
Thr Leu Gly Lys Arg Arg Ser Gly Pro Pro Gly Leu Gln Gly Arg Leu
      65             70             75             80
Gln Arg Leu Leu Gln Ala Ser Gly Asn His Ala Ala Gly Ile Leu Thr
      85             90             95
Met Gly Arg Arg Ala Gly Ala Glu Pro Ala Pro Arg Pro Cys Leu Gly
      100            105            110
Arg Arg Cys Ser Ala Pro Ala Ala Ser Val Ala Pro Gly Gly Gln
      115            120            125
Ser Gly Ile
      130

```

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Gln Pro Leu Pro Asp Cys Cys Arg Gln Lys Thr Cys Ser Cys Arg Leu
 1 5 10 15
 Tyr Glu Leu Leu His Gly Ala Gly Asn His Ala Ala Gly Ile Leu Thr
 20 25 30
 Leu

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Arg Ser Gly Pro Pro Gly Leu Gln Gly Arg Leu Gln Arg Leu Leu Gln
 1 5 10 15
 Ala Ser Gly Asn His Ala Ala Gly Ile Leu Thr Met
 20 25

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 585 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

0898844 09269
 469260 3458680

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

```

GGCTCGGCGG CCTCAGACTC CTTGGGTATT TGGACCACTG CACCGAAGAT ACCATCTCTC      60
CGGATTGCCT CTCCCTGAGC TCCAGACACC ATGAACCTTC CTTCTACAAA GGTTCCCTGG      120
GCCGCCGTGA CGCTGCTGCT GCTGCTACTG CTGCCGCGG CGCTGCTGTC GCTTGGGGTG      180
GACGCGCAGC CTCTGCCCCG CTGCTGTGCG CAGAAGACGT GTTCCTGCCG TCTCTACGAA      240
CTGTTGCACG GAGCTGGCAA CCACGCCGCG GGCATCCTCA CTCTGGGAAA GCGGCGACCT      300
GGACCCCCAG GCCTCCAAGG ACGGCTGCAG CGCCTCCTTC AGGCCAACGG TAACCACGCA      360
GCTGGCATCC TGACCATGGG CCGCCGCGCA GGCAGAGAGC TAGAGCCATA TCCCTGCCCT      420
GGTCGCCGCT GTCCGACTGC AACC GCCACC GCTTTAGCGC CCCGGGGCGG ATCCAGAGTC      480
TGAACCCGTC TTCTATCCCT GTCCTAGTCC TAACTTTCCC CTCTCCTCGC CGGTCCCTAG      540
GCAATAAAGA CGTTTCTCTG CTAAAAA AAAA AAAAAA AAAAA      585

```

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 130 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```

Met Asn Leu Pro Ser Thr Lys Val Pro Trp Ala Ala Val Thr Leu Leu
 1             5             10             15
Leu Leu Leu Leu Leu Pro Pro Ala Leu Leu Ser Leu Gly Val Asp Ala
      20             25             30
Gln Pro Leu Pro Asp Cys Cys Arg Gln Lys Thr Cys Ser Cys Arg Leu
      35             40             45
Tyr Glu Leu Leu His Gly Ala Gly Asn His Ala Ala Gly Ile Leu Thr
      50             55             60
Leu Gly Lys Arg Arg Pro Gly Pro Pro Gly Leu Gln Gly Arg Leu Gln
      65             70             75             80
Arg Leu Leu Gln Ala Asn Gly Asn His Ala Ala Gly Ile Leu Thr Met
      85             90             95
Gly Arg Arg Ala Gly Ala Glu Leu Glu Pro Tyr Pro Cys Pro Gly Arg
      100             105             110
Arg Cys Pro Thr Ala Thr Ala Thr Ala Leu Ala Pro Arg Gly Gly Ser
      115             120             125

```

Arg Val
130

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 32 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Met	Asn	Leu	Pro	Ser	Thr	Lys	Val	Pro	Trp	Ala	Ala	Val	Thr	Leu	Leu
1				5					10					15	
Leu	Leu	Leu	Leu	Leu	Pro	Pro	Ala	Leu	Leu	Ser	Leu	Gly	Val	Asp	Ala
			20					25						30	

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Gln	Pro	Leu	Pro	Asp	Cys	Cys	Arg	Gln	Lys	Thr	Cys	Ser	Cys	Arg	Leu
1				5					10					15	
Tyr	Glu	Leu	Leu	His	Gly	Ala	Gly	Asn	His	Ala	Ala	Gly	Ile	Leu	Thr
				20				25						30	
Leu															

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 amino acids
- (B) TYPE: amino acid

- (C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

```

Pro Gly Pro Pro Gly Leu Gln Gly Arg Leu Gln Arg Leu Leu Gln Ala
 1             5             10             15
Asn Gly Asn His Ala Ala Gly Ile Leu Thr Met
          20             25

```

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 123 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

```

Val Pro Trp Ala Ala Val Thr Leu Leu Leu Leu Leu Leu Leu Pro Pro
 1             5             10             15
Ala Leu Leu Ser Leu Gly Val Asp Ala Gln Pro Leu Pro Asp Cys Cys
          20             25             30
Arg Gln Lys Thr Cys Ser Cys Arg Leu Tyr Glu Leu Leu His Gly Ala
          35             40             45
Gly Asn His Ala Ala Gly Ile Leu Thr Leu Gly Lys Arg Arg Pro Gly
          50             55             60
Pro Pro Gly Leu Gln Gly Arg Leu Gln Arg Leu Leu Gln Ala Asn Gly
          65             70             75             80
Asn His Ala Ala Gly Ile Leu Thr Met Gly Arg Arg Ala Gly Ala Glu
          85             90             95
Leu Glu Pro His Pro Cys Ser Gly Arg Gly Cys Pro Thr Val Thr Thr
          100             105             110
Thr Ala Leu Ala Pro Arg Gly Gly Ser Gly Val
          115             120

```

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Gln	Pro	Leu	Pro	Asp	Cys	Cys	Arg	Gln	Lys	Thr	Cys	Ser	Cys	Arg	Leu
1				5					10					15	
Tyr	Glu	Leu	Leu	His	Gly	Ala	Gly	Asn	His	Ala	Ala	Gly	Ile	Leu	Thr
			20					25					30		
Leu															

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Arg	Pro	Gly	Pro	Pro	Gly	Leu	Gln	Gly	Arg	Leu	Gln	Arg	Leu	Leu	Gln
1				5					10					15	
Ala	Asn	Gly	Asn	His	Ala	Ala	Gly	Ile	Leu	Thr	Met				
			20					25							

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

CAACCNCTNC CNGACTGCTG

20

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

ATNCCNGCNG CATGATT

17

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GTTGCCAGCT CCGTGCAACA GTTCGTAGAG ACGG

34

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CGGCAGGAAC ACGTCTTCTG GCG

23

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

TCCTTGGGTA TTTGGACCAC TGCACCGAAG

30

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

ATACCATCTC TCCGGATTGC CTCTCCCTGA

30

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

CCTCTGAAGG TTCCAGAATC GATAGTAN

28

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CCTCTGAAGG TTCCAGAATC GATAG

25

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

CACAATTGAC AGCCTCAAGG TTCCTGGCTT TTTGAACCAC CACAGACATC TCCTTTCCCG	60
GCTACCCAC CCTGAGCGCC AGACACCATG AACCTTCCTT CCACAAAGGT CTCCTGGGCC	120
GCCGTGACGC TACTGCTGCT GCTGCTGCTG CTGCCGCCCG CGCTGTTGTC GTCCGGGGCG	180
GCTGCACAGC CCCTGCCCCGA CTGCTGTCGT CAAAAGACTT GCTCTTGCCG CCTCTACGAG	240
CTGCTGCACG GCGCGGGCAA TCACGCGGCC GGCATCCTCA CGCTGGGCAA GCGGAGGTCC	300
GGGCCCCCGG GCCTCCAGGG TCGGCTGCAG CGCCTCCTGC AGGCCAGCGG CAACCACGCC	360
GCGGGCATCC TGACCATGGG CCGCCGCGCA GCGCAGAGC CAGCGCCGCG CCCCTGCCTC	420
GGGCGCCGCT GTTCCGCCCC GGCCGCCGCC TCCGTCGCGC CCGGAGGACA GTCCGGGATC	480
TGAGTCGTTT TTCGGGCCCT GTCCTGGCCC AGGCCTCTGC CCTCTGCCCA CCCAGCGTCA	540
GCCCCAGAA AAAAGGCAAT AAAGACGAGT CTCCATT	577